Please add the following new claims:

–127. A composition comprising at least two probes, each labeled with a distinguishable label, for detecting a chromosomal aberration involving the BCR and ABL genes, said chromosomal aberration having an ABL gene side and a BCR gene side, wherein one of said probes hybridizes to the ABL gene side of said chromosomal aberration and the other of said probes hybridizes to the BCR gene side of said chromosomal aberration, wherein said probes hybridize to an aberrant chromosome wherein said probes are of sufficient length to be specifically detected in cytogenetic analysis.

128. A composition comprising at least two probes for detecting a chromosomal aberration, each probe labeled with a distinguishable label, wherein one of said probes hybridizes to a part of the ABL gene on one side of said chromosomal aberration and the other of said probes hybridizes to a part of the BCR gene on the other side of said chromosomal aberration, wherein said probes hybridize to an errant chromosome wherein said probes are of sufficient length to be specifically detected in cytogenetic analysis.

129. The composition of claim 128 wherein said probes hybridize within approximately 800 kb of each other in said aberrant chromosomes.

130. The composition of claim 127 wherein the labels comprise fluorescent labels.

131. The composition of claim 130 wherein the fluorescent labels are distinguishable under a microscope as different colors.

132. The composition of claim 127 wherein the probes hybridize with chromosomal DNA *in situ* in cells.

133. The composition of claim 132 wherein the cells comprise those in interphase of mitotic division.

134. The composition of claim 133 wherein the probes after hybridization are juxtaposed as doublets if a chromosomal aberration is present.

135. The composition of claim 127 wherein one of said probes hybridizes to at least a portion of the last exon of the ABL gene and the other of said probes hybridizes to at least a portion of exon I of the BCR gene.

136. The composition of claim 134 wherein the chromosomal aberration is further defined as comprising a translocation, said translocation formed by breakpoints which occur on the long arms of chromosomes 9 and 22.

137. The composition of claim 136 wherein the translocation breakpoints are further defined as occurring at the locations designated t(9;22)(q11;q34).

138. The composition of claim 137 wherein the translocation breakpoints are further defined to occur in the BCR and ABL genes respectively, and a fusion gene is formed by the translocation, and said fusion gene comprises portions of the BCR and ABL genes.

139. The composition of claim 132 wherein the cells comprise a sample of human tissue.

140. The composition of claim 139 wherein the human tissue sample comprises peripheral blood.

141. The composition of claim 139 wherein the human tissue sample comprises bone marrow.

142. The composition of claim 132 wherein the cells comprise a sample of cultured cells.

143. The composition of claim 127 wherein one of said probes hybridizes to the major breakpoint cluster region (M-bcr) of chromosome 22.

144. The composition of claim 127 wherein one of said probes hybridizes to the first exon of the BCR gene.

145. The composition of claim 127 wherein one of said probes hybridizes to at least a part of the last exon of the ABL gene.

146. The composition of claim 138 wherein the presence of said fusion gene is diagnostic or prognostic for acute lymphocytic leukemia (ALL).

147. The composition of claim 138 wherein the presence of said fusion gene is diagnostic or prognostic for chronic myelogenous leukemia (CML).

148. A kit for the detection of chromosomal aberrations, comprising a first and second nucleic acid probe, each labeled with a distinguishable label, said first probe specifically hybridizes to a part of the ABL gene on one side of said chromosomal aberration and said second probe specifically hybridizes to a part of the BCR gene on the other side of said chromsomal aberration, wherein said probes hybridize to an aberrant chromosome wherein said probes are of sufficient length to be specifically detected in cytogenetic analysis.

149. The composition of claim 127 wherein the aberrant chromosome is the Philadelphia chromosome.--